

**INTRODUCTION FOR VENDOR INFORMATION  
HAZARDOUS WASTE STUDY SERIES  
JANUARY 28, 2000**

The following communication was provided by the Environmental Laboratory Accreditation Program (ELAP) in 2000 to vendors, who showed interest in providing solid and non-aqueous performance evaluation study samples for the ELAP certification of laboratories. This communication is being posted on the ELAP website as instructed by management. Since none of the vendors have contracts with ELAP, the communication was provided as a guideline for the vendors to use in the preparation of hazardous waste performance evaluation samples. Information that is needed by ELAP for administering future studies to evaluate laboratory performance have been shaded in this posting.

## DEPARTMENT OF HEALTH SERVICES

2151 BERKELEY WAY  
BERKELEY, CA 94704-1011  
510) 540-2800



January 28, 2000

VENDOR INFORMATION  
ELAP PERFORMANCE EVALUATION STUDY PROGRAM  
HAZARDOUS WASTE (HW) STUDY SERIES  
CHEMISTRY

California State Environmental Laboratory Accreditation Program (ELAP) has a two-tiered certification program for laboratories performing testing of environmental samples: NELAP accreditation program; ELAP certification program. The terminology "proficiency testing studies" or "PT studies" refers to the NELAP accreditation program. The term "performance evaluation studies" or "PE studies" refers to the California ELAP certification program. The information provided in this communique describes the ELAP certification program, which is California's regular certification program.

Since the NIST accreditation program of vendors did not include hazardous waste matrices, a vendor listing different from that of NIST's has been provided to our laboratories. This listing has been enclosed along with the analytes list. If you cannot provide the listed analytes in the year 2000, and are not able to meet California's needs, please contact Jane Jensen at (510) 540-2800 by February 14, 2000, in order for your company's name to be removed from the listing. Please provide the request in writing to Jane Jensen at the above address.

Laboratories certified in California are required to submit results using all methods requested for certification. Thus, the laboratories have been instructed to make copies of the blank report forms to facilitate such reporting to the vendor of choice. Laboratories are permitted to report multiple results for the same analytes from one sample, since identical reported results are technically not probable with the use of different analytical methods.

Since California certification includes mobile laboratories and auxiliary laboratories/units associated with stationary/parent laboratories, multiple samples may be requested by the stationary/parent laboratory. Each mobile laboratory must possess its own EPA laboratory ID code, in order for the results to be applied to the mobile laboratory. If an auxiliary unit desires to participate in a performance evaluation study, then it must possess its own EPA laboratory ID code in order for the results to be differentiated from the parent laboratory. If an EPA laboratory ID code is not made available to the vendor by the laboratory, please remind the laboratory to contact Fred Choske at (510) 540-2800, immediately.

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Vendor Information

Enclosed is information for the California ELAP certification program information is for the vendor alone and not to be shared with others.

Numerous vendors have inquired about the number of participants for the analytes which appear on the enclosed list. The estimated number of participants for some of the analytes and methods have been enclosed.

Please contact Jane Jensen at (510) 540-2800, if you have any questions Your cooperation is greatly appreciated.

Sincerely,

George C. Kulasingham, Ph.D.  
Program Chief

( Signed by JJ )

Jane Jensen  
Environmental Laboratory Accreditation Program

Enclosure

- List of vendors
- List of analytes/methods
- Estimated Number of Participants
- Vendor Information
  - ELAP HW Study Requirements
  - Hazardous Waste Performance Evaluation Sample Requirements
  - Hazardous Waste Performance Evaluation Sample Specifications
  - Example/Hazardous Waste Study Instructions

VENDORS  
PERFORMANCE EVALUATION STUDY SAMPLE  
HAZARDOUS WASTE MATRICES  
(January 2000)

<u>Provider</u>	<u>Address/Telephone/FAX/E-mail</u>	<u>Contact</u>
Absolute Standards, Inc.	P.O. Box 5585 Hamden, CT 06518 800-368-1131 FAX 800-410-2577 Absolutest@aol.com	Stephen J. Arpie
ERA (Environmental Resource Associates)	5540 Marshall Street Arvada, CO 80002 800-372-0122 FAX 303-421-0159 qcstds@aol.com	Chuck Wibby
New York State	Environmental Laboratory Approval Program NYSDoH, Wadsworth Center P.O. Box 509 Albany, NY 12201 518-485-5570 FAX 518-485-5568 Caruso@wadsworth.org	Matthew Caruso
Protocol Analytical Supplies	472 Lincoln Blvd Middlesex, NJ 08846 732-627-0500 FAX 732-627-0979 Bhahn@prostds.com	William H. Hahn
RT Corporation	P.O. Box 1346 Laramie, WY 82073 307-742-5452 or 800-576-5690 FAX 307-745-7936 RT-Corp@RT-Corp.com	Bob Rucinski

HAZARDOUS WASTE METHODS  
(January 2000)

Inorganic Compounds & Elements

antimony  
arsenic  
barium  
beryllium  
cadmium  
chromium, total  
cobalt  
copper  
lead  
mercury  
molybdenum  
nickel  
selenium  
silver  
thallium  
vanadium  
zinc  
chromium (VI) \*  
cyanide \*\*  
fluoride \*\*  
organo lead \*  
sulfide \*\*

Physical Properties

corrosivity - pH \*  
ignitability - flashpoint \*  
reactivity \*

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

\*\*Sample to be available in the Summer of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

CA Method LUFT

gasoline  
diesel

EPA Method 418.1

petroleum hydrocarbons

EPA Method 8010B

carbon tetrachloride  
chloroform  
chloromethane  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
1,1-dichloroethane  
1,2-dichloroethane  
dichloromethane  
1,1,2,2-tetrachloroethane  
1,1,1,2-tetrachloroethane  
tetrachloroethene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
trichloroethene  
trichlorofluoromethane  
1,2,3-trichloropropane  
vinylchloride

EPA Method 8011

1,2-dibromo-3-chloropropane (DBCP)  
ethylene dibromide (EDB)

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8015B\*

allyl alcohol  
t-butyl alcohol  
1,4-dioxane  
ethylene glycol  
methanol  
methylisobutylketone (MIBK)  
N-nitroso-di-n-butylamine  
paraldehyde  
2-pentanone  
pyridine  
o-toluidine

EPA Method 8015B (TPH only)

gasoline  
diesel

EPA Method 8020A

benzene  
chlorobenzene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
ethylbenzene  
toluene  
xylenes

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8021B (halogenated volatiles only)

bis(2-chloroisopropyl)ether  
bromobenzene  
bromoform  
carbontetrachloride  
chloroform  
chloromethane  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
dichlorodifluoromethane  
1,1-dichloroethane  
1,2-dichloroethane  
1,1,1,2-tetrachloroethane  
1,1,2,2-tetrachloroethane  
tetrachloroethene  
1,2,4-trichlorobenzene  
1,1,1-trichloroethane  
1,1,2-trichloroethane  
trichloroethene  
1,2,3-trichloropropane  
vinylchloride

EPA Method 8021B (Aromatic Volatiles only)

benzene  
chlorobenzene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
ethylbenzene  
toluene  
xylenes

EPA Method 8021B (BTEX and MTBE only)

benzene  
toluene  
ethylbenzene  
xylenes  
methyl-t-butylether

EPA Method 8031\*

acrylonitrile

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.



EPA Method 8032A\*

acrylamide

EPA Method 8041

4-chloro-3-methylphenol  
2-chlorophenol  
2-methylphenol (o-cresol)  
3-methylphenol (m-cresol)  
4-methylphenol (p-cresol)  
2,4-dimethylphenol  
2-nitrophenol  
4-nitrophenol  
pentachlorophenol  
phenol  
2,3,4,5-tetrachlorophenol  
2,3,4,6-tetrachlorophenol  
2,3,5,6-tetrachlorophenol  
2,4,5-trichlorophenol  
2,4,6-trichlorophenol

EPA Method 8061A\*

bis(2-ethylhexyl)phthalate  
butylbenzylphthalate  
di-n-butylphthalate  
diethylphthalate  
dimethylphthalate  
di-n-octylphthalate  
  
bis(2-methoxyethyl)phthalate  
diamylphthalate  
dicyclohexylphthalate  
dinonylphthalate  
hexyl-2-ethylhexylphthalate

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8070A\*

N-nitrosodimethylamine  
N-nitrosodiphenylamine  
N-nitrosodi-n-propylamine

EPA Method 8081A (Organochlorine Pesticides only)

aldrin  
alpha-BHC  
beta-BHC  
delta-BHC  
gamma-BHC  
alpha-chlordane  
gamma-chlordane  
chlordane  
4,4'-DDD  
4,4'-DDE  
4,4'-DDT  
dieldrin  
endosulfan I  
endosulfan II  
endosulfate  
endrin  
heptachlor  
heptachlor epoxide  
methoxychlor  
toxaphene

EPA Method 8082 (PCBs only)

aroclor 1016/1242  
aroclor 1221  
aroclor 1232  
aroclor 1248  
aroclor 1254  
aroclor 1260

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8091\*

1,4-dinitrobenzene  
2,4-dinitrotoluene  
2,6-dinitrotoluene  
1,4-naphthoquinone  
nitrobenzene  
pentachloronitrobenzene  
  
1-chloro-2,4-dinitrobenzene  
1-chloro-4-nitrobenzene  
4-chloro-3-nitrotoluene  
3,5-dichloronitrobenzene  
  
dinitramine  
1,2-naphthoquinone  
2-nitrotoluene  
2,3,4,5-tetrachloronitrobenzene  
2,4,6-trichloronitrobenzene  
trifluralin

EPA Method 8100

acenaphthene  
acenaphthylene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
benzo(b)fluoranthene  
benzo(k)fluoranthene  
benzo(g,h,i)perylene  
chrysene  
dibenzo(a,h)anthracene  
fluoranthene  
fluorene  
indeno(1,2,3-c,d)pyrene  
naphthalene  
phenanthrene  
pyrene

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8111\*

4-bromophenylphenylether  
2-chlorophenyl-4-nitrophenylether  
3-chlorophenyl-4-nitrophenylether  
4-chlorophenyl-4-nitrophenylether  
2,4-dibromophenyl-4-nitrophenylether  
2,4-dichlorophenyl-3-methyl-4-nitrophenylether  
2,6-dichlorophenyl-4-nitrophenylether  
3,5-dichlorophenyl-4-nitrophenylether  
2,5-dichlorophenyl-4-nitrophenylether  
2,4-dichlorophenyl-4-nitrophenylether  
2,3-dichlorophenyl-4-nitrophenylether  
3,4-dichlorophenyl-4-nitrophenylether  
4-nitrophenylphenylether  
2,4,6-trichlorophenyl-4-nitrophenylether  
2,3,6-trichlorophenyl-4-nitrophenylether  
2,3,5-trichlorophenyl-4-nitrophenylether  
2,4,5-trichlorophenyl-4-nitrophenylether  
3,4,5-trichlorophenyl-4-nitrophenylether  
2,3,4-trichlorophenyl-4-nitrophenylether

EPA Method 8120A\*

2-chloronaphthalene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
hexachlorobenzene  
hexachlorobutadiene  
hexachlorocyclohexane  
hexachlorocyclopentadiene  
hexachloroethane  
pentachlorohexane  
tetrachlorobenzenes  
1,2,4-trichlorobenzene

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8121\*

benzal chloride  
benzotrichloride  
alpha-BHC (alpha-hexachlorocyclohexane)  
beta-BHC (beta-hexachlorocyclohexane)  
gamma-BHC (gamma-hexachlorocyclohexane)  
delta-BHC (delta-hexachlorocyclohexane)  
pentachlorobenzene  
1,2,3,4-tetrachlorobenzene  
1,2,4,5-tetrachlorobenzene  
1,2,3,5-tetrachlorobenzene  
1,2,3-trichlorobenzene  
1,3,5-trichlorobenzene

EPA Method 8141A\*

diazinon  
dichlorvos (DDVP)  
melathion  
phorate  
ronnel  
stirophos (tetrachlorovinphos)

EPA Method 8150B

2,4-D (2,4-dichlorophenoxyacetic acid)  
2,4-DB  
2,4,5-T  
2,4,5-TP (silvex)  
dalapon  
dicamba  
dinoseb  
MCP

EPA Method 8151A

2,4-D (2,4-dichlorophenoxyacetic acid)  
2,4-DB  
2,4,5-T  
2,4,5-TP (silvex)  
dalapon  
dicamba  
dinoseb  
MCP  
pentachlorophenol

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8240B

benzene  
chlorobenzene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
ethylbenzene  
isopropylbenzene  
toluene  
xylene  
  
bis(2-chloroethoxymethane)  
bis(2-chloroethyl)ether  
bis(2-chloroisopropyl)ether  
carbontetrachloride  
chloroacetaldehyde  
chloroform  
chloromethane  
1,1-dichloroethane  
1,2-dichloroethane  
1,1,1,2-tetrachloroethane  
1,1,2,2-tetrachloroethane  
tetrachloroethene  
trichloroethene  
trichlorofluoromethane  
1,2,3-trichloropropane  
vinylchloride

EPA Method 8250A

aniline  
  
acenaphthene  
acenaphthylene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
benzo(b)fluoranthene  
benzo(k)fluoranthene  
benzo(g,h,i)perylene  
chrysene  
dibenzo(a,h)anthracene  
fluoranthene  
fluorene  
indeno(1,2,3-c,d)pyrene  
naphthalene  
phenanthrene  
pyrene

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8250A (continued)

diethylphthalate  
di-n-octylphthalate  
dimethylphthalate

gamma-BHC  
4,4'-DDT  
endrin  
heptachlor  
heptachlor epoxide  
pentachlorophenol  
toxaphene

2-chloronaphthalene  
hexachlorobenzene  
hexachloroethane

EPA Method 8260B

benzene  
chlorobenzene  
1,2-dichlorobenzene  
1,3-dichlorobenzene  
1,4-dichlorobenzene  
ethylbenzene  
isopropylbenzene  
toluene  
xylene

carbontetrachloride  
chloroform  
chloromethane  
1,1-dichloroethane  
1,2-dichloroethane  
hexylchloroethane  
methanol  
1,1,1,2-tetrachloroethane  
1,1,2,2-tetrachloroethane  
tetrachloroethene  
trichloroethane(s)  
trichloroethene  
trichlorofluoromethane  
1,2,3-trichloropropane  
vinylchloride

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8270C

2-amino-1-methylbenzene (o-toluidine)  
aniline  
maleic anhydride

acenaphthene  
acenaphthylene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
benzo(b)fluoranthene  
benzo(k)fluoranthene  
benzo(g,h,i)perylene  
chrysene  
dibenzo(a,h)anthracene  
fluoranthene  
fluorene  
indeno(1,2,3-c,d)pyrene  
naphthalene  
phenanthrene  
pyrene

diethylphthalate  
di-n-octylphthalate  
dimethylphthalate

gamma-BHC  
4,4'-DDT  
endrin  
heptachlor  
heptachlor epoxide  
pentachlorophenol  
toxaphene

EPA Method 8280A\*

TCDD  
PeCDD  
HxCDDs  
HpCDD  
OCDD  
TCDF  
PeCDFs  
HxCDFs  
HpCDFs  
OCDF

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.



EPA Method 8290\*

TCDD  
PeCDD  
HxCDDs  
HpCDD  
OCDD  
TCDF  
PeCDFs  
HxCDFs  
HpCDFs  
OCDF

EPA Method 8310

acenaphthene  
acenaphthylene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
benzo(b)fluoranthene  
benzo(k)fluoranthene  
benzo(g,h,i)perylene  
chrysene  
dibenzo(a,h)anthracene  
fluoranthene  
fluorene  
indeno(1,2,3-c,d)pyrene  
naphthalene  
phenanthrene  
pyrene

EPA Method 8315A\*

acetaldehyde  
acetone  
acrolein  
benzaldehyde  
cyclohexanone  
formaldehyde  
octanal  
m-tolualdehyde  
o-tolualdehyde  
p-tolualdehyde

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8316\*

acrylamide  
acrylonitrile  
acrolein

EPA Method 8318\*

aldicarb (temik)  
aldicarb sulfone  
carbaryl (sevin)  
carbofuran (furadan)  
dioxacarb  
3-hydroxycarbofuran  
methiocarb (mesuro1)  
methomyl (lannate)  
promecarb  
propoxur (baygon)

EPA Method 8321A

Aldicarb  
aldicarb sulfone  
aldicarb sulfoxide  
carbaryl  
carbofuran  
diuron  
methiocarb (mesuro1)  
methomyl (lannate)  
propoxur (baygon)

EPA Method 8330\*

HMX (octahydro-1,3,5,7-tetranitro-1,3,5,7-tetrazocine)  
RDX (hexahydro-1,3,5-trinitro-1,3,5-triazine)  
1,3,5-TNB (1,3,5-trinitrobenzene)  
1,3,-DNB (1,3,-dinitrobenzene)  
tetryl (methyl-2,4,6-trinitrophenylnitramine)  
NB (nitrobenzene)  
2,4,6-TNT (2,4,6-trinitrotoluene)  
4-Am-DNT (4-amino-2,6-dinitrotoluene)  
2-Am-DNT (4-amino-4,6-dinitrotoluene)  
2,4-DNT (2,4-dinitrotoluene)  
2,6-DNT (2,6-dinitrotoluene)  
2-NT (2-nitrotoluene)  
3-NT (3-nitrotoluene)  
4-NT (4-nitrotoluene)

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.

EPA Method 8331\*

tetrazene

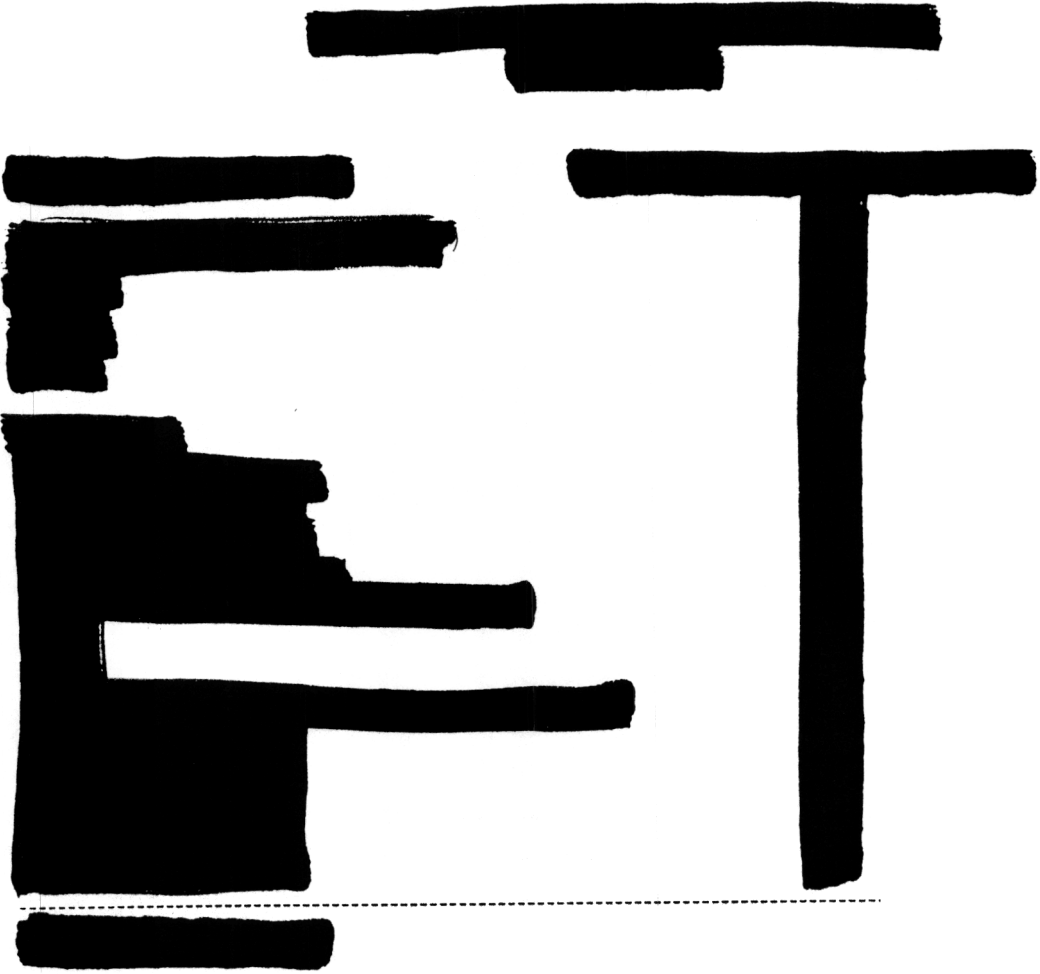
EPA Method 8410

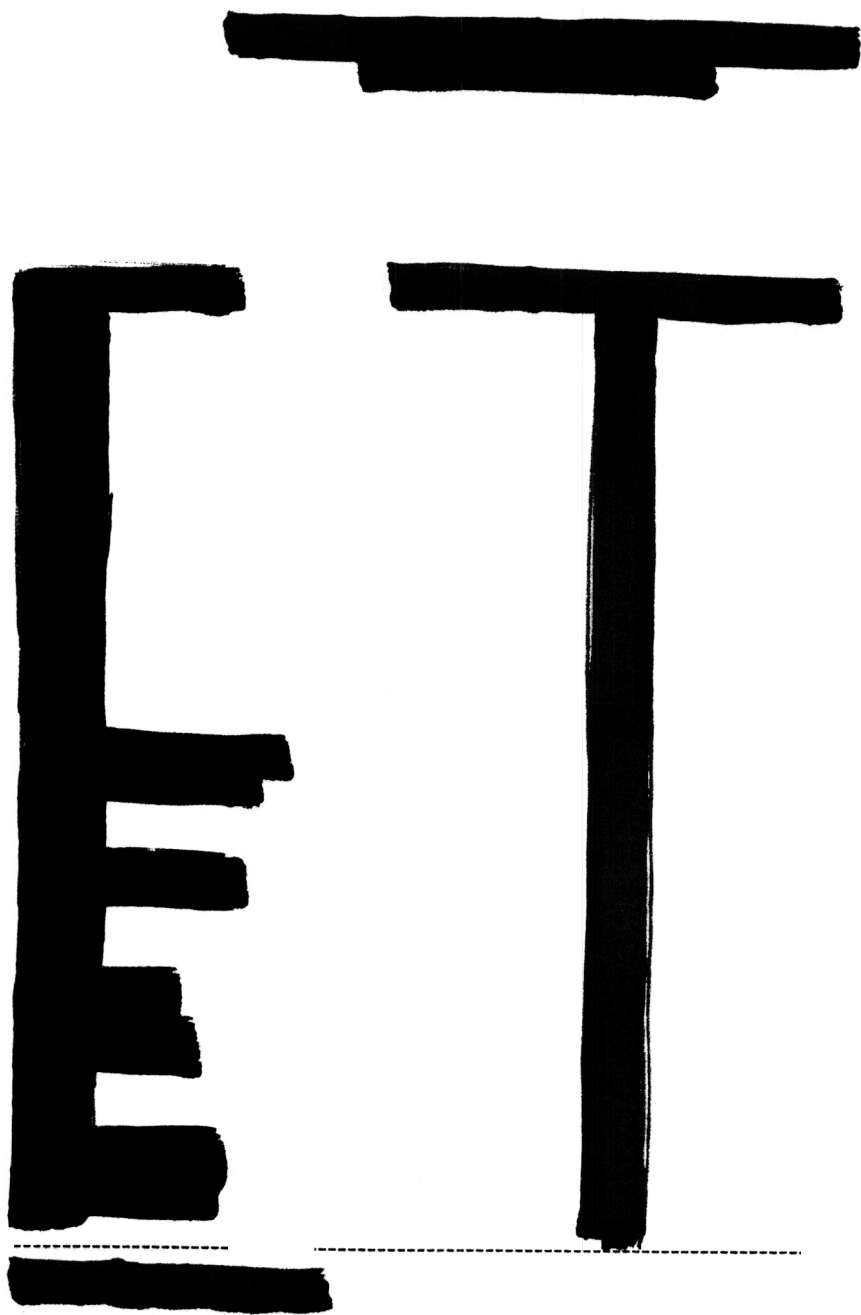
acenaphthene  
acenaphthylene  
anthracene  
benzo(a)anthracene  
benzo(a)pyrene  
chrysene  
dibenzofuran  
fluoranthene  
fluorene  
naphthalene  
phenanthrene  
pyrene

bis(2-ethylhexyl)phthalate  
di-n-butylphthalate  
diethylphthalate  
di-n-octylphthalate  
dimethylphthalate

pentachlorophenol

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\* Sample to be available in the Spring of 2000. Laboratories certified or seeking certification for the method are required to analyze the appropriate study sample from that time.





ELAP HW STUDY REQUIREMENTS  
(Vendor Information)

Laboratories certified by California ELAP will be notifying vendors that they will be requiring participation in performance evaluation studies. These laboratories may provide lists of the analytes needed. The studies have been scheduled for the first and third quarters of the calendar year. Laboratories are recommended to participate in the necessary studies during the scheduled three-month windows. Completion dates of the studies may be beyond the three-month period. Each study shall be no longer than 45-days in length. Evaluation reports shall be provided to the laboratory and ELAP by the vendor within 21 days of the study completion date.

2. Those laboratories electing not to follow the Department's schedule are responsible for timely submittal of evaluation reports by the chosen vendor(s) to ELAP. Such reports must be received at ELAP from the chosen vendor(s) no later than June 30th of each calendar year for the first study, and no later than December 31st of each calendar year for the second study. (Evaluation reports received after the designated dates, June 30th and December 31st, will not be accepted, i.e. no laboratory will be subject to preferential treatment. Faxed copies of the reports are not accepted.) The two studies are recommended to be approximately six months apart. Each study shall be no longer than 45-days in length as designated by the vendor. Evaluation reports shall be provided to the laboratory and ELAP by the vendor within 21 days of the study completion date.
3. The vendor must be in compliance with NIST handbook 150, NIST handbook 150-19, USEPA criteria document (December 1998 & updates), and NELAC standards. The vendor must also be in compliance with ISO/IEC Guide 43-1 (1999(E)).

The list of analytes are sectioned by method, so that the laboratories will know which representative analytes by method are required for performance evaluation study purposes.

5. Laboratories are required to obtain acceptable rating in performance evaluation studies, once a year, for all fields-of-testing certified or sought for certification.
6. The evaluation report must have the following minimum information
  - vendor's name, ID number, location, telephone, fax
  - type of sample and matrix (e.g. solid, non-aqueous liquid)
  - study dates (beginning & completion), study number
  - laboratory (participant) name, city, state
  - (if mobile, license number, vehicle identification number)
  - laboratory EPA ID code
  - analytes
  - method of analyses
  - reported results
  - acceptance range
  - MDL (method detection limit assigned by the vendor)
  - mean
  - evaluation of "acceptable" or "not acceptable"
  - overall method evaluation of "acceptable" or "not acceptable"

The evaluation reports must be similar to past USEPA reports, i.e. the analytes, etc. should be on the same sheet, rather than on individual sheets. The vendor must comply with the USEPA Criteria Document with respect to database field identifications and format, with the exception of the additional fields, such as MDL.

The address and contact for mailing of evaluation report(s) is

Fred Choske  
Environmental Laboratory Accreditation Program  
California State Department of Health Services  
2151 Berkeley Way, Annex 2  
Berkeley, CA 94704.

Faxed copies of the evaluation report are not accepted

Electronically transmitted evaluation report(s) in fixed width ASCII Microsoft Access or Microsoft Excel format should be E-mailed to

@dhs.ca.gov

- 10 Both printed and electronically transmitted evaluation reports are required for California ELAP.

Contact for specifications and general questions from vendors should be directed to

Jane Jensen at 510) 540-2800 or FAX 510) 849-5106

## HAZARDOUS WASTE PERFORMANCE EVALUATION SAMPLE REQUIREMENTS

### Solid Matrices

Samples must be close to real world samples similar to matrix routinely encountered as hazardous waste. Solids may be ash, soil, paint chips, sediment, sludge, or other similar hazardous waste solids.

- 2 Samples cannot be sand.

Samples cannot be blanks or background solids.

Samples cannot be spikes which are provided in separate containers one containing a matrix and the other containing the spiking solution.

The sample must be a composite sample, provided in one container.

### Non-aqueous Liquid Matrices

Samples must be close to real world samples similar to matrix routinely encountered as hazardous waste. Non-aqueous liquid matrices may be oils, paint, tar, or other similar hazardous waste non-aqueous liquids.

Samples cannot be blanks or background non-aqueous liquids.

3. Samples cannot be spikes which are provided in separate containers one containing a matrix and the other containing the spiking solution.

- 4 The sample must be a composite sample, provided in one container

### General Requirements

Samples must be stable for a minimum of 60 days.

Samples must be checked for homogeneity.

Samples must be validated for determination of acceptance limits

### Contact

The contact person for further specifications and information is

Jane Jensen  
Department of Health Services  
2151 Berkeley Way, Annex 2  
Berkeley, CA 94704  
(510) 540-2800  
FAX 849-5106.



HAZARDOUS WASTE PERFORMANCE EVALUATION IMPLEMENTATION SPECIFICATIONS  
(Vendor Information Only)

Organic Analytes

There should be a single sample containing volatile organic compounds (VOCs).

The sample must be designed such that multiple methods for VOC analyses can be used to identify appropriate analytes.

There should be a single sample containing semi-volatile compounds.

The sample must be designed such that multiple methods for semi-volatile analyses can be used to identify the appropriate analytes.

Separate samples can be provided for those special cases where physical and chemical properties of the analytes, safety, or other limiting factors exist. Examples are carbamates, dioxins, explosives, herbicides, PCBs, PAHs, and pH.

- 4 The analyte composition in following studies need not be the same; the same analytes need not be present in every study.

Organic Analytes

There should be one sample for metals analyses.

circumstances for "special analyte compositions" may be due to physical and chemical properties of the analytes, safety, or other limiting factors.

### General Specifications

#### Reports/Instructions

The report forms, which are provided to participants with the samples, must have the analytes that are present, and those that are not present (i.e. the forms must incorporate representative analytes whether present or not). The report forms must also have the MDL (method detection limit) for each analyte that the participants are expected to meet.

The vendor should provide instructions to participants. An example has been enclosed for information purposes. The sample size and aliquot size are recommended values.

Study instructions to participants for analyses of TPH (gasoline/diesel) must contain the spectrum cut off range (i.e., GROs and DROs) for analyses.

The vendor must list a method detection limit (MDL) for each analyte. The MDL can be a value from the approved method, or a value which is targeted by the vendor as a minimum detection value for the analyte in the sample.

[REDACTED]

#### Spike Levels/Validation/etc

[REDACTED]

The random number generator shall be used to determine the concentration of the analyte for the study.

[REDACTED]

[REDACTED]

The samples must be subjected to homogeneity checks, as specified in the ISO/IEC Guide 43-1 (1996(E)). The samples must meet homogeneity requirements at the 95% confidence level.

- 4 The samples must be subjected to shelf life stability studies as described in ISO/IEC Guide 43-1 (1996(E)).

The samples must be validated for the determination of acceptance limits. Use of linear regression equations are not accepted, since they are not applicable for the types of sample matrices described in this document. Validation shall be conducted by reference laboratories, as described in ISO/IEC Guide 43-1 (1996(E)). A minimum of twenty data points per analyte per sample is preferred, but if less than 20 data points are only attainable, Horowitz statistics or similar statistics shall be utilized to determine the mean and standard deviation.

Validation for the determination of acceptance limits must involve the use of California approved method(s) of analyses for the compounds in the hazardous waste sample(s). Lists of approved methods are available on our Web, [www.dhs.ca.gov/ps/ls/elap/elapindex.htm](http://www.dhs.ca.gov/ps/ls/elap/elapindex.htm), in the laboratory information forms (LIF) for hazardous waste fields-of-testing 9, 10, 11, 12, and 13.

The quantity of sample provided to the participant must be sufficient to carry out the analyses as a routine real world sample. Since more than one method may be used on the same sample, sufficient sample must be provided. However, the sample quantity should be limited to the degree that there would be insufficient sample quantity for duplicate matrix spikes and other quality control parameters for each method employed.

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#### Evaluation

For evaluation of laboratory results, any false negative or false positive result must be evaluated as "not acceptable". Any value reported below the listed MDL shall be evaluated as "acceptable".

The frequency of solid vs non-aqueous liquid matrices in performance evaluation studies should be planned in such a manner that a variety of matrices would be made available to laboratories, but would restrict it in such a way that a laboratory obtaining "not acceptable" rating for a method with a matrix will have an opportunity to be retested at a later date with a similar matrix.

3. Acceptance limits are based on mean and standard deviation from reference laboratory data. The acceptance limits are determined by Z-score statistics at the 99% confidence level.
4. Since certification for organic fields-of-testing are by methods, the organic analytes in a performance evaluation study are evaluated individually and the overall evaluation by method must also appear in the evaluation report.

Since certification for inorganic fields-of-testing are by individual analyte, the inorganic analytes in a performance evaluation study are evaluated individually and the evaluation report must have the method of analysis for the analyte.

# E X A M P L E

## INSTRUCTIONS HAZARDOUS WASTE PERFORMANCE EVALUATION STUDY HW04

**CAUTION:** read the instructions carefully before beginning the analyses

The samples are hazardous waste solids and non-aqueous liquids containing inorganic and organic compounds as indicated on the report forms. The samples must be analyzed by methods for which your laboratory is certified and/or seeking certification in the hazardous waste fields-of-testing. The analyst(s) performing the analyses must be the analyst(s) who routinely performs hazardous waste analyses.

Each laboratory is required to identify and quantitate the compounds in each sample for which the laboratory is certified and/or seeking certification. Any false positive or false negative response will be evaluated as "not acceptable". Also evaluated as "not acceptable" will be results of "<" values exceeding the method detection limits provided on the report forms.

The samples are provided in limited quantities. Laboratories are advised to plan ahead before beginning sample preparation. There may be insufficient sample for duplicates and matrix spikes. The table below shows the recommended aliquot size by matrix and analyte. Non-aqueous liquid sample sizes will vary by type of liquid and analyte composition, and recommended aliquot size will be provided with the sample. (The "soil" designation in the table applies to sludge, sediment and other soil-like matrix.)

<u>matrix</u>	<u>sample size(g)</u>	<u>analyte</u>	<u>aliquot (g)</u>
ash	30 - 50	metals	1 - 2
paint chips	20	metals	1 - 2
powder	20	metals	1 - 2
soil	30	CN/F/S	10
soil	50	metals	1 - 2
soil	100	organic	30
soil	100	TPHdiesel	10
soil	30	TPHgasoline	10
soil	30	VOC	10

### Data Reporting

Copies of the blank report forms should be made to facilitate reporting of results from multiple methods for the same analyte. Each laboratory is required to meet the "detection limits" provided on the report forms. If the response is non-detect, the "ND" or "<" with the method detection limit must be entered. All data must be reported to three (3) significant figures based on dry weight (with the exception of explosive compounds) in units of mg/Kg. (For liquid matrix, the units for reporting is mg/L.) If an analyte was not analyzed, the result field next to that analyte must be left blank.

### Inquiries